

PATENT

Atty. Dkt. No. CRUI/0028

**IN THE CLAIMS:**

1. (Currently Amended) A tubing connection arrangement comprising:  
a first expandable tubing section defining a male portion; and  
a second expandable tubing section defining a female portion, the first and second expandable tubing sections being engageable with one another[;]] ~~one of the first and second expandable tubing section~~ including a restraining member for restraining part of the other expandable tubing section upon expansion of the section, the restraining member extending from a distal end of the second tubular and including an area of reduced thickness permitting flexible movement of the restraining member about the area of reduced thickness. ; and  
~~the first expandable tubing section including a tapered shoulder for cooperating with a corresponding tapered shoulder of the second expandable tubing section.~~
2. (Original) A tubing connection arrangement as claimed in claim 1, wherein the first expandable tubing section includes first and second axially spaced shoulders for cooperating with corresponding first and second axially spaced shoulders of the second expandable tubing section.
3. (Currently Amended) A tubing connection arrangement as claimed in claim 1, wherein the first expandable tubing section includes a tapered shoulder for cooperating with a corresponding tapered shoulder of the second expandable tubing section and the shoulder comprises a face of the respective expandable tubing section.
4. (Original) A tubing connection arrangement as claimed in claim 3, wherein the face is formed on an axial end of the respective tubing section.
5. (Original) A tubing connection arrangement as claimed in claim 1, wherein the expandable tubing sections include a radially extending shoulder member defining the shoulder.

Page 3

364086\_1

PATENT

Atty. Dkt. No. CRUI/0026

6. (Original) A tubing connection arrangement as claimed in claim 2, wherein each expandable tubing section includes a first shoulder comprising a face on an axial end thereof and a radially extending shoulder member defining a second shoulder.

7. (Currently Amended) A tubing connection arrangement as claimed in claim 3 [[1]], wherein the shoulders of the first and second expandable tubing sections are adapted to define a gap between their respective tapered surfaces when the first and second expandable tubing sections are engaged and before expansion of the connection arrangement.

8. (Original) A tubing connection arrangement as claimed in claim 7, wherein the gap is adapted to close on expansion of the connection arrangement to bring the tapered surfaces into contact.

9. (Original) A tubing connection arrangement as claimed in claim 1, wherein the restraining member extends from an axial end of the second expandable tubing section.

10. (Original) A tubing connection arrangement as claimed in claim 9, wherein the restraining member extends from the female portion of the second expandable tubing section.

11. (Original) A tubing connection arrangement as claimed in claim 1, wherein the restraining member is adapted to extend in an axial direction along an outer surface of part of the first expandable tubing section.

12. (Original) A tubing connection arrangement as claimed in claim 1, wherein the restraining member is adapted to extend in an axial direction along an outer surface of part of the second expandable tubing section.

## PATENT

Atty. Dkt. No. CRUI/0026

13. (Original) A tubing connection arrangement as claimed in claim 1, wherein the restraining member comprises a sleeve.
14. (Original) A tubing connection arrangement as claimed in claim 13, wherein the sleeve comprises slotted tubing.
15. (Original) A tubing connection arrangement as claimed in claim 13, wherein the sleeve defines a number of separate arms or fingers.
16. (Original) A tubing connection arrangement comprising:  
a first expandable tubing section defining a threaded male portion having lead and back thread flanks; and  
a second expandable tubing section defining a threaded female portion having lead and back thread flanks, the first and second expandable tubing sections being engageable with one another;  
the lead thread flanks of the threaded male portion disposed at an angle different from that of the lead thread flanks of the threaded female portion.
17. (Original) A tubing connection arrangement as claimed in claim 16, wherein the difference between the angles of the lead thread flanks of the male and female portions is less than 10°.
18. (Original) A tubing connection arrangement as claimed in claim 17, wherein the difference is between 1 and 5°.
19. (Original) A tubing connection arrangement as claimed in claim 17, wherein the difference is approximately 2°.
20. (Original) A tubing connection arrangement as claimed in claim 16, wherein the lead thread flanks of the threaded male portion are disposed at 45° with respect to a main thread axis.

PATENT

Atty. Dkt. No. CRUI/0026

21. (Original) A tubing connection arrangement as claimed in claim 16 wherein the lead thread flanks of the threaded female portion are disposed at 43° with respect to a main thread axis.

22. (Original) A tubing connection arrangement as claimed in claim 16, wherein the lead thread flanks of the threaded male portion are disposed at 43° and the lead thread flanks of the threaded female portion at 45° with respect to a main thread axis.

23. (Original) A tubing connection arrangement as claimed in claim 16, wherein the back thread flanks of the threaded male and female portions are disposed at an acute angle with respect to a main thread axis such that the respective thread portions are angled away from an adjacent end of the respective tubing section, to define a hook profile.

24. (Original) A tubing connection arrangement comprising:  
a first expandable tubing section defining a threaded male portion having lead and back thread flanks; and  
a second expandable tubing section defining a threaded female portion having lead and back thread flanks, the first and second expandable tubing sections being engageable with one another;  
the back thread flanks of the threaded male and female portions being disposed at an acute angle with respect to respective main thread axes such that the respective thread portions are angled away from an adjacent end of the respective tubing section.

25. (Original) A tubing connection arrangement as claimed in claim 24, wherein the acute angle is between 40 and 90°.

26. (Original) A tubing connection arrangement as claimed in claim 25, wherein the acute angle is approximately 83°.

Page 6

364086\_1

## PATENT

Atty. Dkt. No. CRUI/0026

27. (Original) A tubing connection arrangement as claimed in claim 24, wherein the lead thread flanks of the threaded male portion are disposed at an angle different from that of the lead thread flanks of the threaded female portion.
28. (Withdrawn) A tubing connection arrangement comprising: a first expandable tubing section defining a male portion; a second expandable tubing section defining a female portion, the first and second expandable tubing sections being engageable with one another; and at least one of the first and second expandable tubing sections including an axially deformable member adapted to deform on engagement of the first and second expandable tubing sections with one another.
29. (Withdrawn) A tubing connection arrangement as claimed in claim 28, wherein the deformable member is adapted to deform on engagement of the first and second expandable tubing sections to impart a force on the male and female portions.
30. (Withdrawn) A tubing connection arrangement as claimed in claim 28, wherein the male and female portions are threaded such that the deformable member pre-loads the threads of the threaded male and female portions when deformed.
31. (Withdrawn) A tubing connection arrangement as claimed in claim 28, wherein the deformable member is dimensioned to allow a number of sequential partial deformations.
32. (Withdrawn) A tubing connection arrangement as claimed in claim 28, wherein the deformable member is diametrically expandable.
33. (Withdrawn) A tubing connection arrangement as claimed in claim 28, wherein the deformable member is partially plastically and elastically deformable.
34. (Withdrawn) A tubing connection arrangement as claimed in claim 28, wherein the deformable member is wholly elastically deformable.

## PATENT

Atty. Dkt. No. CRUI/0026

35. (Withdrawn) A tubing connection arrangement as claimed in claim 28, wherein the deformable member is an integral part of the respective expandable tubing section.
36. (Withdrawn) A tubing connection arrangement as claimed in claim 28, wherein the deformable member comprises a separate component of the respective expandable tubing section.
37. (Withdrawn) A tubing connection arrangement as claimed in claim 28, wherein the deformable member comprises a diametrically expandable ring.
38. (Withdrawn) A tubing connection arrangement as claimed in claim 37, wherein the deformable member comprises a slotted ring.
39. (Withdrawn) A tubing connection arrangement as claimed in claim 37, wherein the deformable member comprises separate sections together forming a ring.
40. (Withdrawn) A tubing connection arrangement as claimed in claim 28, wherein both the first and second expandable tubing sections include an axially deformable member.
41. (Withdrawn) A tubing connection arrangement as claimed in claim 28, wherein the first expandable tubing section includes a shoulder for co-operating with a corresponding shoulder of the second expandable tubing section.
42. (Withdrawn) A tubing connection arrangement as claimed in claim 41, wherein the deformable member is locatable between the shoulders of the first and second expandable tubing sections.
43. (Currently Amended) A tubing connection arrangement comprising:  
a first expandable tubing section defining a male portion;

## PATENT

Atty. Dkt. No. CRUI0026

a second expandable tubing section defining a female portion, the first and second expandable tubing sections being engageable with one another; and

~~one of the first and second expandable tubing section[s]]~~ including a non threaded restraining member extending from a distal end thereof for restraining part of the ~~other~~ first expandable tubing section, the restraining member including a hinge about which the restraining member is adapted to bend upon expansion of a portion of the first expandable tubing section ~~on expansion~~.

44. (Cancelled)

45. (Cancelled)

46. (Original) A tubing connection arrangement as claimed in claim 43, wherein the restraining member comprises a sleeve adapted to extend in an axial direction around an outer surface of part of the first expandable tubing section.

47. (Original) A tubing connection arrangement as claimed in claim 43, wherein the hinge is integral with the restraining member.

48. (Original) A tubing connection arrangement as claimed in claim 47, wherein the hinge comprises a living hinge.

49. (Original) A tubing connection arrangement as claimed in claim 43, wherein the hinge is defined by a zone of weakness in the restraining member.

50. (Original) A tubing connection arrangement as claimed in claim 49, wherein the zone of weakness comprises an area of relatively thin cross-sectional thickness than a remainder of the restraining member.

PATENT

Atty. Dkt. No. CRUI0026

51. (Original) A tubing connection arrangement as claimed in claim 43, wherein the restraining member comprises a separate component coupled to the respective expandable tubing section to form a hinge therebetween.

52. (Original) A tubing connection arrangement as claimed in claim 51, wherein the restraining member comprises a sleeve.

53. (Original) A tubing connection arrangement as claimed in claim 51, wherein the restraining member comprises a plurality of arms.

54. (Cancelled)

55. (Original) A tubing connection arrangement as claimed in claim 43, wherein the hinge is provided in the same axial position of the restraining member as a bending zone on the overlapped expandable tubing section.

56. (Currently Amended) A tubing connection arrangement comprising:  
a first expandable tubing section having [[defining]] a threaded male portion, a lip portion and an end face;

a second expandable tubing section having [[defining]] a threaded female portion, a lip portion and an end face, the first and second expandable tubing sections being engageable with one another to form a threaded connection; and

wherein a cross-sectional thickness of the first expandable tubing section is greater in the region of the male threaded portion than at a point axially spaced from the male threaded portion, wherein the expansion of the tubing sections the bending substantially occurs axially on either side of the engaged threaded portions rather than across the threaded connection.

57. (Original) A tubing connection arrangement as claimed in claim 56, wherein the point is spaced axially from the male portion in a direction away from an end of the first expandable tubing section defining the male portion.



PATENT

Atty. Dkt. No. CRUI/0026

58. (Original) A tubing connection arrangement as claimed in claim 56, wherein the point comprises an area extending at least part way along a length of the first expandable tubing section immediately adjacent the male portion.

59. (Original) A tubing connection arrangement as claimed in claim 56, wherein the first expandable tubing section includes a shoulder for co-operating with a corresponding shoulder of the second expandable tubing section.

60. (Original) A tubing connection arrangement as claimed in claim 59, wherein the point is immediately adjacent the shoulder of the first expandable tubing section.

61. (Currently Amended) A tubing connection arrangement comprising:  
a first expandable tubing section defining a threaded male portion and a threaded radial hole extending through the threaded male portion and adapted to receive a threaded locking member; and  
a second expandable tubing section defining a female portion, the first and second expandable tubing sections being engageable with one another and the second expandable tubing section including a bore with a countersunk portion, the bore extending through the threaded female portion and adapted to receive the threaded locking member when the threaded hole of the first expandable tubing section is aligned with the bore of the second expandable tubing section, for restraining the sections against relative rotation.

62. (Withdrawn) A tubing connection arrangement comprising: a first expandable tubing section including a perforated inner expandable tubing defining a continuous annular ring at an axial end thereof; a male portion; and a threaded radial hole formed in the perforated inner expandable tubing with a solid unperforated tubing wall section extending axially between the hole and the ring, the hole adapted to receive a threaded locking member; and a second expandable tubing section defining a female portion, the first and second expandable tubing sections being engageable with one another and the

PATENT

Atty. Dkt. No. CRUV0028

second expandable tubing section including a bore adapted to receive the threaded locking member when the threaded hole of the first expandable tubing section is aligned with the bore of the second expandable tubing section, for restraining the sections against relative rotation.

63. (Currently Amended) A tubing connection arrangement comprising:  
a first expandable tubing section defining a male portion;  
a second expandable tubing section defining a female portion, the first and second expandable tubing sections being engageable with one another; and  
the first expandable tubing section including first and second axially spaced shoulders for co-operating with corresponding first and second axially spaced shoulders of the second expandable tubing section, the length of the male portion between the first and second shoulders being selected to minimise bending of the male and female portions on expansion, wherein more than half of the length between the respective first and second shoulders is threaded to minimize separation of the first expandable tubular from the second expandable tubular upon expansion of the connection arrangement.

64. (Original) A tubing connection arrangement as claimed in claim 63, wherein the male and female portions are threaded.

65. (Original) A tubing connection arrangement as claimed in claim 64, wherein a majority of the length of the male and female portions between the respective first and second shoulders is threaded.

66. (Cancelled)

67. (Original) A tubing connection arrangement as claimed in claim 1, wherein each expandable tubing section comprises a filter screen mounted around an inner expandable tubing.

## PATENT

Atty. Dkt. No. CRUI0026

68. (Original) A tubing connection arrangement as claimed in claim 1, wherein each tubing section comprises a filter screen sandwiched between inner expandable tubing and outer protective expandable tubing.

69. (Original) A tubing connection arrangement as claimed in claim 67, wherein the inner and outer expandable tubings comprise perforated tubing such as slotted tubing.

70. (Original) A tubing connection arrangement as claimed in claim 67, wherein each filter screen comprises a plurality of overlapping sheets individually mounted to the respective inner expandable tubing by axially parallel fixings.

71. (Original) A tubing connection arrangement as claimed in claim 1, wherein one of the first and second expandable tubing sections includes a restraining member for restraining part of the other expandable tubing section, a length of the restraining member selected to maximise axial overlap between a filter screen of the respective expandable tubing section and slots in an inner support tubing of the respective expandable tubing section.

72. (Original) A tubing connection arrangement as claimed in claim 1, wherein the male portion of the first expandable tubing section comprises a pin and the female portion of the second expandable tubing section comprises a box.

73. (Original) A tubing connection arrangement as claimed in claim 1, wherein the male and female portions of the first and second expandable tubing sections define upsets.

74. (Original) A tubing connection arrangement as claimed in claim 1, wherein the tubing connection arrangement is a downhole tubing connection arrangement.

PATENT

Atty. Dkt. No. CRUI/0026

75. (Original) Downhole tubing comprising a tubing connection arrangement as claimed in claim 1.

76. (Currently Amended) A method of coupling expandable tubing sections together, the method comprising ~~the steps of:~~

providing a first expandable tubing section defining a male portion and a respective tapered shoulder;

providing a second expandable tubing section defining a female portion and a respective tapered shoulder;

providing a restraining member that extends from a distal end of one of the first and second expandable tubing section[s], the restraining member having an area of reduced thickness; and

coupling the first and second expandable tubing sections together such that the restraining member restrains part of said other expandable tubing section and such that said shoulders are brought into engagement; and

expanding a portion of the first tubular thereby permitting the restraining member to flex around the area of reduced thickness.

77. (Currently Amended) A method of coupling expandable tubing sections together, the method comprising ~~the steps of:~~

providing a first expandable tubing section defining a threaded male portion having respective lead and back thread flanks;

providing a second expandable tubing section defining a female threaded portion having respective lead and back thread flanks, the lead thread flanks of the threaded male portion disposed at an angle different from that of the lead thread flanks of the threaded female portion; and

coupling the first and second expandable tubing sections together.

78. (Currently Amended) A method of coupling expandable tubing sections together, the method comprising ~~the steps of:~~

PATENT

Atty. Dkt. No. CRUI/0026

providing a first expandable tubing section defining a threaded male portion having lead and back thread flanks; and

providing a second expandable tubing section defining a threaded female portion having lead and back thread flanks, the back thread flanks of the threaded male and female portions being disposed at an acute angle with respect to respective main thread axes such that the respective thread portions are angled away from an adjacent end of the respective tubing section, wherein the acute angle is between 40 and 90 degrees; and

coupling the first and second expandable tubing sections together.

79. (Withdrawn) A method of coupling expandable tubing sections together, the method comprising the steps of: providing a first expandable tubing section defining a male portion; providing a second expandable tubing section defining a female portion; providing at least one of the first and second expandable tubing sections with an axially deformable member; and coupling the first and second expandable tubing sections together to deform the deformable member and impart a force on the male and female portions.

80. (Currently Amended) A method of coupling expandable tubing sections together, the method comprising ~~the steps of:~~

providing a first expandable tubing section defining a male portion;

providing a second expandable tubing section defining a female portion;

~~providing one of the first and second expandable tubing sections with a~~ restraining member having a hinge about which the restraining member is adapted to bend on expansion; ~~[[and]]~~

coupling the first and second expandable tubing sections together such that the restraining member restrains part of said other expandable tubing section; and

expanding the sections and causing the restraining member to bend around the area of the hinge.

PATENT

Atty. Dkt. No. CRUI/0026

81. (Currently Amended) A method of coupling expandable tubing sections together, the method comprising ~~the steps of:~~

providing a first expandable tubing section having defining a threaded male portion and a lip portion;

providing a second expandable tubing section having defining a threaded female portion and a corresponding lip portion, a cross-sectional thickness of the first expandable tubing section being greater in the region of the male threaded portion than at a point axially spaced from the male threaded portion; and

coupling the first and second expandable tubing sections together by engaging the male threaded portion and the female threaded portion to form a threaded connection; and

expanding a portion of the tubing sections, whereby bending substantially occurs axially on either side of the engaged threaded portions rather than across the threaded connection.

82. (Currently Amended) A method of coupling expandable tubing sections together, the method comprising ~~the steps of:~~

providing a first expandable tubing section defining a threaded male portion having a threaded radial hole extending therethrough;

providing a second expandable tubing section defining a female portion having a bore with a countersunk portion, the bore extending therethrough;

coupling the first and second expandable tubing sections together; aligning the threaded radial hole with the bore with a countersunk portion; and

locating a threaded locking member in the aligned radial hole and bore for restraining the sections against relative rotation.

83. (Withdrawn) A method of coupling expandable tubing sections together, the method comprising the steps of: providing a first expandable tubing section including a perforated inner expandable tubing defining a continuous annular ring at an axial end thereof; a male portion; and a threaded radial hole formed in the perforated inner expandable tubing with a solid unperforated tubing wall section extending axially

PATENT

Atty. Dkt. No. CRUI/0026

between the hole and the ring; providing a second expandable tubing section defining a female portion including a bore; coupling the first and second expandable tubing sections together; aligning the threaded radial hole with the bore; and locating a threaded locking member in the aligned radial hole and bore for restraining the sections against relative rotation.

84. (Currently Amended) A method of coupling expandable tubing sections together, the method comprising the steps of:

providing a first expandable tubing section defining a male portion including first and second axially spaced shoulders;

providing a second expandable tubing section defining a female portion including first and second axially spaced shoulders;

selecting the length of the male portion between the first and second shoulders to minimise bending of the male and female portions on expansion; and

coupling the first and second expandable tubing sections together such that said respective first and second shoulders of the first and second expandable tubing sections are brought into engagement, wherein more than half of the length between the respective first and second shoulders is threaded to minimize separation of the tubulars upon expansion thereof